AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (original) An apparatus for reducing the size of particles entrained in a drilling fluid returning up a wellbore, comprising:

(a) a housing disposed in a wellbore upstream of a selected wellbore device, an inlet in fluid communication with the return fluid, an exit for directing the return fluid to said selected wellbore device, and a first stage including:

(i) at least one cutting surface formed in a chamber formed in said housing; and

(ii) a cutting head disposed in said chamber, said cutting head cooperating with said at least one cutting surface to reduce the size of the particles entrained in the drilling fluid to a predetermined size.

2. (original) The apparatus according to claim 1 wherein said cutting head includes cutting members formed on at least two surfaces on different planes, and wherein said at least one cutting surface includes a plurality of cutting surfaces positioned in cooperative relation to said cutting members.

3. (original) The apparatus according to claim 1 wherein an inner wall of said housing is configured to spin the return fluid in said chamber.

4. (original) The apparatus according to claim 1 wherein an inner wall of said housing is configured to minimize the settling of entrained particles in said chamber.

5. (original) The apparatus according to claim 1 wherein said cutting head is rotated by one of (i) a shaft coupled to said selected wellbore device, (ii) a motor, and (iii) a drill string.

6. (original) The apparatus according to claim 1 wherein a gap is provided between said cutting head and an inner wall of said housing, said gap being sized for allowing the return fluid to exit said chamber.

7. (original) The apparatus according to claim 1 wherein said selected device is one of (i) a positive displacement pump; (ii) a centrifugal pump, and (iii) a jet pump.

8. (original) The apparatus according to claim 1 wherein said cutting head comprises a rotor having a circumferential outer surface having cutting members provided thereon, and said at least one cutting surface is formed an inner surface of said housing.

9. (currently amended) The apparatus according to claim 1 wherein said cutting head includes a first section formed to reduce the entrained particles to said ~~first~~ predetermined size and a said second section formed to reduce the entrained particles to a second predetermined size.

10. (currently amended) The apparatus according to claim 1 wherein said housing further comprises a second chamber including at least one cutting surface formed in a said second chamber formed in said housing; and a second cutting head disposed in said second chamber, said second cutting head cooperating with said at least one cutting surface of said second chamber to reduce the size of the particles entrained in the drilling fluid to a second predetermined size.

11. (currently amended) The apparatus according to claim 10 wherein said second cutting head includes a plurality of flow bores for allowing the return fluid to exit said second chamber.

12. (original) The apparatus according to claim 10 wherein a flow gap is provided between said second cutting head and an inner wall of said housing such that the return fluid can flow through said flow gap.

13. (original) The apparatus according to claim 10 wherein said cutting head and said second cutting head include a plurality of cutting members having inclined portions aligned on at least two different planes.

14. (currently amended) The apparatus according to claim 10 wherein said at least one cutting surface of said first and second ~~stages~~ chambers include at least two cutting surfaces, and wherein said cutting head includes a plurality of cutting members arranged in cooperative relationship with said at least two cutting surfaces of said first stage, said second cutting head include a plurality of cutting members arranged in cooperative relationship with said at least two cutting surfaces of said second ~~stage~~ chamber.

15. (currently amended) An wellbore device for processing the size of particles entrained in a drilling fluid returning up a wellbore (the "return fluid"), comprising:

(a) a housing disposed in a the wellbore, the housing having an inlet in fluid communication with the return fluid and including:

(i) a first chamber for reducing the size of the particles entrained in the drilling fluid to a first predetermined size by disintegrating the particles; and

(ii) a second chamber for reducing the size of the particles entrained in the drilling fluid to a ~~first~~ second predetermined size.

16. (original) The wellbore device according to claim 15 wherein said housing has an outlet in fluid communication with one of (i) a positive displacement pump; (ii) a centrifugal pump; and (iii) a jet pump.

17. (original) The wellbore device according to claim 15 wherein said first and second chambers each include a crushing member for reducing the size of the entrained particles.

18. (original) The wellbore device according to claim 17 wherein said crushing members of said first and second chambers are configured to continuously reduce the size of the entrained particles

19. (currently amended) A wellbore device for processing the size of particles entrained in a drilling fluid returning up a wellbore (the "return fluid"), comprising:

(a) an operator positioned in the wellbore in fluid communication with the return fluid, said operator generating an energy field that reduces the size of the particles entrained in the drilling fluid to a first predetermined size when the particles flow through the energy field.

20. (original) The wellbore device according to claim 19 wherein the energy field is selected from a group consisting of (i) sonic, (ii) thermal, (iii) chemical, and (iv) electrical.

21. (currently amended) A method for reducing the size of particles entrained in a drilling fluid returning up a wellbore, comprising:

(a) disposing a housing in a wellbore ~~upstream of a selected wellbore device~~;

(b) providing fluid communication between the return fluid and chamber associated with the housing;

(c) reducing the size of the particles entrained in the drilling fluid to a predetermined size by disintegrating the particles as the particles flow through the chamber; and

(d) directing the return fluid from the housing to a selected wellbore device.

22. (original) The method according to claim 21 further comprising spinning the return fluid in the chamber.

23. (original) The method according to claim 21 rotating a cutting head positioned in the chamber by one of (i) a shaft coupled to said selected wellbore device, (ii) a motor, and (iii) a drill string, the cutting head thereby reducing the size of the particles entrained in the return fluid.

24. (original) The method according to claim 21 wherein the selected device is one of (i) a positive displacement pump; (ii) a centrifugal pump, and (iii) a jet pump.

25. (original) The method according to claim 21 further comprising reducing the size of the entrained particles continuously as the entrained particles flow through the chamber.

26. (original) The method according to claim 21 further comprising providing a first and second stage for the chamber; reducing the entrained particles to a first predetermined size in the first stage; and reducing the entrained particles to a second predetermined size in the second stage.

27. (original) The method according to claim 21 further comprising producing an energy field in the chamber with an operator, the energy field reducing the size of the particles entrained in the drilling fluid to the first predetermined size when the particles flow through the energy field.

28. (original) The method according to claim 27 wherein the energy field is selected from a group consisting of (i) sonic, (ii) thermal, (iii) chemical, and (iv) electrical.

29. (new) A system for drilling a wellbore in a subterranean formation, comprising:

(a) a drill string having a drill bit at an end thereof, the drill bit forming cuttings during drilling that are entrained in a drilling fluid flowing up the wellbore;

(b) an active pressure differential device (APD Device) positioned in

the wellbore controlling pressure of the drilling fluid flowing up the wellbore;

(c) a controller controlling the APD Device; and

(d) a comminution device positioned in the wellbore adapted to reduce the size of the particles entrained in the drilling fluid by disintegrating the particles.

30. (new) The apparatus according to claim 29 wherein said comminution device is operated by one of (i) a motor, and (ii) a drill string.

31. (new) The apparatus according to claim 29 wherein the APD Device is one of (i) a positive displacement pump; (ii) a centrifugal pump, and (iii) a jet pump.

32. (new) A method for drilling a wellbore in a subterranean formation, comprising:

(a) providing a drill string having a drill bit at an end thereof, the drill bit forming cuttings during drilling that are entrained in a drilling fluid flowing up the wellbore;

(b) controlling pressure of the drilling fluid flowing up the wellbore using an active pressure differential device (APD Device) positioned in the wellbore;

(c) controlling the APD Device with a controller; and

(d) disintegrating the cuttings entrained in the drilling fluid using a comminution device positioned in the wellbore.

33. (new) The method according to claim 32 further comprising operating the comminution device using one of (i) a motor, and (ii) a drill string.

34. (new) The method according to claim 32 wherein the APD Device is one of (I) a positive displacement pump; (ii) a centrifugal pump, and (iii) a jet pump.